. ATENT COOPERATION TRE. TY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 13 July 2001 (13.07.01)	
International application No. PCT/US00/27685	**Applicant's or agent's file reference** RCA 89858
International filing date (day/month/year) 06 October 2000 (06.10.00)	**Priority date** (day/month/year) 06 October 1999 (06.10.99)

Applicant

ESKICIOGLU, Ahmet, Mursit et al

1. The designated Office is hereby notified of its election made:

   [X] in the demand filed with the International Preliminary Examining Authority on:

   02 May 2001 (02.05.01)

   [ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

   [ ] was not

   made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	**Authorized officer** H. Zhou
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

Form PCT/IB/331 (July 1992)   US0027685

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference RCA 89858	**FOR FURTHER ACTION**	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US 00/ 27685	International filing date *(day/month/year)* 06/10/2000	(Earliest) Priority Date *(day/month/year)* 06/10/1999

Applicant THOMSON LICENSING S.A.

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of _____3_____ sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

      [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

      [ ] contained in the international application in written form.

      [ ] filed together with the international application in computer readable form.

      [ ] furnished subsequently to this Authority in written form.

      [ ] furnished subsequently to this Authority in computer readble form.

      [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

      [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable (See Box I).**

3. [ ] **Unity of invention is lacking (see Box II).**

4. With regard to the **title,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.   1

   [X] as suggested by the applicant.   [ ] None of the figures.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7   H04N7/16   H04N5/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7   H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, COMPENDEX, INSPEC, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 420 866 A (WASILEWSKI ANTHONY J) 30 May 1995 (1995-05-30)	1,4,9
A	column 1, line 14 -column 7, line 7	2,3,5-8, 10-16
	figures 1-8	

P,X	WO 00 56068 A (THOMSON LICENSING S A ;DEISS MICHAEL SCOTT (US); ESKICIOGLU AHMET) 21 September 2000 (2000-09-21) page 2, line 14 - line 29 page 4, line 4 -page 5, line 14 figures 1-8	1,3

A	EP 0 858 184 A (NDS LTD) 12 August 1998 (1998-08-12) column 1, line 12 -column 7, line 20 figures 1-5	1-16

	-/--	

[X] Further documents are listed in the continuation of box C.   [X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
30 January 2001	06/02/2001

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Tito Martins, J

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	"FUNCTIONAL MODEL OF A CONDITIONAL ACCESS SYSTEM" , EBU REVIEW-TECHNICAL,BE,EUROPEAN BROADCASTING UNION. BRUSSELS, NR. 266, PAGE(S) 64-77 XP000559450 ISSN: 0251-0936 the whole document	1-16
A	KRAMER D: "WUNDERKISTE DES DIGITALEN FERNSEHENS" , BULLETIN SEV/VSE,CH,SCHWEIZERISCHER ELEKTROTECHNISCHER VEREIN, ZURICH, VOL. 88, NR. 3, PAGE(S) 27-30 XP000885105 ISSN: 0036-1321 page 27-28	1-16

4

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 5420866	A	30-05-1995	AU	687844 B	05-03-1998
			AU	7220994 A	17-10-1995
			CA	2186368 A,C	05-10-1995
			JP	2940639 B	25-08-1999
			JP	9511369 T	11-11-1997
			WO	9526597 A	05-10-1995
WO 0056068	A	21-09-2000	AU	3629100 A	04-10-2000
EP 0858184	A	12-08-1998	IL	120174 A	28-10-1999
			GB	2322030 A,B	12-08-1998

For two-letter codes and other abbreviations, refer to the "Guid-ance Notes on Codes and Abbreviations" appearing at the begin-ning of each regular issue of the PCT Gazette.

PATENT COOPERATION TREATY

EXPRESS EV025963053US

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

Tripoli, Joseph S
THOMSON MULTIMEDIA LICENSING INC
P.O. Box 5312
Princeton, New Jersey 08540
ETATS-UNIS D'AMERIQUE

RECEIVED
JAN 2 8 2002
I S & S

PCT
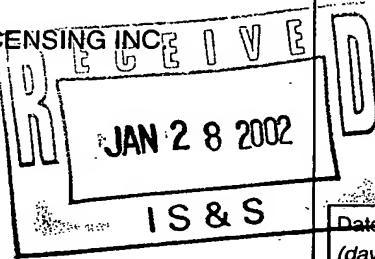
NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing *(day/month/year)*	17.01.2002

Applicant's or agent's file reference	
RCA 89858	**IMPORTANT NOTIFICATION**

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US00/27685	06/10/2000	06/10/1999

Applicant
THOMSON LICENSING S.A. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

    The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

    Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

    For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Event	Amend	Final Country Selection
Deadline	6 Feb 2002	to Davida
Entered	DPF 2/1/02	

Name and mailing address of the IPEA/	Authorized officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Schalinatus, D Tel.+49 89 2399-8242

Form PCT/IPEA/416 (July 1992)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference RCA 89858	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US00/27685	International filing date *(day/month/year)* 06/10/2000	Priority date *(day/month/year)* 06/10/1999
International Patent Classification (IPC) or national classification and IPC H04N7/16		
Applicant THOMSON LICENSING S.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 9 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

I	☒	Basis of the report
II	☐	Priority
III	☐	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	☐	Lack of unity of invention
V	☒	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
VI	☐	Certain documents cited
VII	☒	Certain defects in the international application
VIII	☒	Certain observations on the international application

Date of submission of the demand 02/05/2001	Date of completion of this report 17.01.2002
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Loeser, E Telephone No. +49 89 2399 8482

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. **PCT/US00/27685**

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

   Description, pages:

1,3-15	as originally filed			
2,2a	as received on	24/10/2001	with letter of	23/10/2001

   Claims, No.:

1-5,7-18	as received on	24/10/2001	with letter of	23/10/2001

   Drawings, sheets:

1-3	as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

  □   the description,   pages:

  □   the claims,   Nos.:

  □   the drawings,   sheets:

5.   □   This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

    (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6.   Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-18
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-18
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-18
	No:	Claims	

2. Citations and explanations
   see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

1. General

The present application does not satisfy the criteria set forth in Article 6. The criteria set out in Articles 33(2) and 33(3) PCT are met, provided that the claims' deficiencies as to lack of clarity set out below are overcome. The invention is industrially applicable.

2. Concerning Section VIII - Art. 6 PCT:

2.1.

The various definitions of the invention given in independent method claims 1, 4, 17 and 18 and the high degree of overlap of the respectively claimed subject-matter (claims 4, 17 and 18 are considered to relate to the same basic embodiment as defined in claim 1 and could therefore be drafted as dependent claims without difficulty) are such that the claims as a whole are not concise, contrary to Art. 6 and Rule 6.1(a) PCT.

2.2.

The feature "automatically identifying one of the extracted pairs according to a predefined convention" used in each of claims 1, 2, 4, 5, 8 fails to set out clearly its technical meaning (Art. 6 PCT contravened). The "predefined convention" appears to be intended to further delimit the <u>automatic identification</u>, however fails to define the technical features required therefor (what kind of convention?).

It is acknowledged that the description (p.14) discloses sending one or two pairs of PIDs, wherein two different types of pairs containing either a CA ECM PID or a LECM PID. Thus there appears to be a "predefined convention of the number and types of pairs that are transmittable, and the order in plural pairs of different types are sent" and that the terminal must be capable of handling different cases. Such handling can be automatic, and there is an implicit requirement of taking into account, at reception of any pair, the predefined convention about the number and types of transmittable pairs, so as to correctly use the received information. It is thus considered

that the term "predefined convention" requires clarification
such as "predefined convention defining the type, such as the
syntax, of said control messages and the order of transmission
of said identifier pairs" (Basis: p.14 lines 11-29).

It is considered that when only one pair is received, the
automatic identification relies upon the detection of characte-
ristics of the data content (eg the syntax of the LECM, cf p.14
line 25) of the pair to correctly discriminate between the two
types of identifiers (CA or LECM). When two pairs are received,
a detection is not required because the order in which the pairs
are transmitted is predefined.

2.3.
Claims 4, 17 and 18 appear to be based on yet unmentioned but
essential conditions:

In the received broadcast control messages which due to the
claims' wording inherently contain the service and entitlement
control message packet identifier pairs, as addressed in the
claims, these pairs must include at least either LECM or CA
identifiers. Due to the claims' wording, a situation where none
of such identifiers is received may occur but is not dealt with.
E.g., if a pair of identifiers is received which does not
include any of LECM of CA but includes other identifiers for
other purposes, the method would erroneously interpret such
other identifiers as LECM or CA identifiers. Due to this
deficiency inherent in the claims' wording the scope of
protection becomes unclear.

It is thus considered necessary to clarify the claims by
specifying e.g. "receiving and extracting ... service, wherein
each of the received pairs includes either a conditional access
entitlement message identifier (CA ECM) or a local entitlement
control message identifier (LECM)", i.e. by including the last
feature of present claim 1 in each of claims 17 and 18.

2.4.
In claims 4, 17 and 18 an attempt is made to define the claimed
subject-matter in terms of a result to be obtained ("identifying
the extracted pair as ...") without specifying how this can be

achieved technically. Related essential information is missing
in the claim. Thus Art. 6 PCT is contravened.

In order to overcome this objection, it would appear to be
sufficient in the present case to indicate in the claim (as for
claim 1, cf paragraph 2.2 above) that the identification is
based on a "<u>predefined convention defining the type, such as the
syntax, of said control messages and the order of transmission
of said identifier pairs</u>".

3.   Concerning Section V - Articles 33(2) and 33(3) PCT

The following documents are cited:
D1: US-A-5 420 866;
D2: Kramer D: "Wunderkiste des digitalen Fernsehens", Bull.
    SEV/VSE, CH, Schweizerischer Elektrotechnischer Verein,
    Zürich, Vol.88 No.3 pp. 27-30.

3.1.   Claim 1

D1 (e.g. abstract) discloses a method of providing different
sets of conditional access information to a remote location,
wherein a remotely located decoder can employ transmitted table
information to identify and extract transport packets that carry
a selected one of the sets of conditional access information.

It is stressed that D1 aims at overcoming a prior art problem
(D1: col.5 lines 1-17) that when plural services from respective
plural different vendors were to be received, a respective plu-
rality of different decoders was required.

In order to overcome this problem, the solution disclosed in
D1 provides a single transport stream formed from plural diffe-
rent elementary streams representing the different services from
the different vendors (D1: col.5 line 31 - col.6 line 36; Figs.
7, 8). Each elementary stream is accompanied in well-known man-
ner by auxiliary and identifying information (D1: Fig.3), such
as program service information and encryption related informa-
tion, such as entitlement control messages (ECM).

When such information is extracted, it is implicitly required

to extract from the data stream the packet identifiers for the
PMT and ECM packets of a specific substream. The extraction of
any two such extracted packet identifiers implied by D1 antici-
pates the extraction of packet identifier pairs of claim 1.

Claim 1 is silent about services from different vendors. The
claim merely implies the presence of "a service" provided as a
packetized data stream which includes identifier pairs to be ex-
tracted, wherein a pair consists of a service packet identifier
and an entitlement control identifier (ECM). Such features are
anticipated by the explicit and implicit disclosure of D1, be-
cause the known system requires the extraction of such identi-
fiers in order to enable access to the payload information of an
elementary data stream desired to be accessed.

Claim 1 further effectively specifies that an entitlement con-
trol identifier (ECM) can be of two different types, one being
"conditional access entitlement control message identifier (CA
ECM)", and the other a "local entitlement control message iden-
tifier (LECM)". The different names given to these two types of
identifiers do not by themselves establish a technical distinc-
tion therebetween. Thus the LECM is interpreted as being just
another ECM possibly being prepared for services from a specific
vendor, or for a different purpose (e.g. Extended Conditional
Access, XCA, cf pp. 3-5, whatever this might mean technically)
not at present defined in the claim.
    Regardless of the interpretation of "LECM", when a pair of
identifiers as claimed happens to contain a CA ECM, the feature
is anticipated by D1. Moreover, as long as the term LECM is not
clearly defined, the option of providing a LECM instead of a CA
ECM could be seen as establishing novelty at least formally, but
could not establish an inventive step.

The claim's feature pertaining to "automatically identifying one
of the extracted pairs according to a predefined condition" has
deficiencies under Art. 6 PCT identified in paragraph 2.2 above
which do not permit establishing the feature's true scope. Thus
the feature cannot establish an inventive step.

D2, like D1, addresses the problem of providing a subscriber with content from different providers wherein conditional access has to be carried out according to respective different systems (Simulcrypt).

For the reasons given above, claim 1 on file is can be seen as meeting the requirement of novelty but cannot be seen to establish an inventive step as required by Art. 33(3) PCT in light of the what is explicitly and implicitly disclosed by D1.

However, under the assumption that the claim is clarified in accordance with the suggestion made in paragraph 2.2 above, it will comprise the following effective feature: predefining different types of ECM to makes them distinguishable from each other and thus automatically detectable, and, for the case of transmission of two pairs of identifiers, predefining in which order the pairs each containing a different type of ECM are transmitted. Such a concept does not appear to be suggested disclosed in any of the presently available prior art.

It is considered that the aforementioned suggested clarification to claim 1 is relatively minor. Hence, the findings in this report relative to inventive step of claim 1 are given under the assumption that the required clarifications set out above are carried out. Under this assumption, claim 1 and its dependent claims would meet the requirements set out in Art. 33(3) PCT.

3.2.   Claims 4 and 17, 18

The findings set out in paragraph 3.2 above correspondingly apply to claims 4, 17 and 18.

Thus under the assumption that the clarifications identified in paragraphs 2.3 and 2.4 are carried out, these claims and their dependent claims would meet the requirements set out in Art. 33 PCT.

4.   Concerning Section VII: Description and other belongings

4.1. The claims are not cast in the two-part form as required by Rule 6.3(b) PCT.

4.2. A document reflecting the prior art described on page 2 is not identified in the description (Rule 5.1(a)(ii) PCT).

4.3. As to the relevant background art disclosed by D1, the description (p.2 paragraph 3) is considered to summarize the disclosure of D1 in a slightly misleading manner. It is considered that the actual disclosure of D1 includes providing a single transport stream with plural elementary data streams from different providers and involving different conditional access system, and includes a single decoding device (Fig.6) capable of decoding any desired one of the elementary streams (Fig. 8). The presence of "plural decoders" addressed in D1 (col.12) is considered to merely relate to the disclosed single decoder's hardware ability to decode in accordance with plural different encryption/CA schemes (change-over between different software modules).

2

different entitlement messages.   Each service is comprised of audio and video packets. Any one decoder picks out the packets it needs and ignores the others in the stream.

5
In a Simulcrypt based CA system, a digital audio/video processing system, such as a Digital Television (DTV) parses the PMT and extracts the service and ECM PIDs using a CA system identification (ID) obtained from the CA module. Normally, each CA module supports only one CA system, and therefore has only one CA system ID. The PIDs of the A/V packets and the PIDs of the ECMs carrying the Control Words (CWs) are sent to the CA module, which descrambles programs
10
having proper purchase entitlements.

U.S. Patent No. 5,420,866 to Wasilewski describes a method for providing conditional access information to a plurality of different decoders which is very similar to a Simulcrypt system. Wasilewski describes using a CA system identification parameter CA_System_ID to identify the different CA providers, and hence the
15
different decoders (see col. 12, lines 12-16).

Additionally, an article entitled "Wunderkiste des digitalen Fernsehens" by Daniel Kramer mentions the Simulcrypt technique (Kramer D: "Wunderkiste des digitalen Fernsehens", Bull. SEV/VSE, CH, Schweizerischer Elektrotechnischer Verein, Zurich, Vol. 88, No. 3, pp.27-30).
20

Summary of Invention

The present invention permits an audio/video processing device to use two CA system IDs to parse the PMT, and the CA module to correctly identify the ECM PIDs which belong to a particular CA system. It includes a method for an A/V processing
25
device, for example a DTV, to enable a security device to access a program by correctly identifying the packets for service and entitlement control messages. The security device is associated with the A/V processing device, which in turn is associated with a digital transmission system for data associated with a service. The method comprises extracting at least one service and entitlement message control
30
packet identifier pair from the data and, if only one service and entitlement control message packet identifier pair is extracted, identifying the extracted pair; and, if more than one service and entitlement control message packet identifier pair is extracted,

AMENDED SHEET

automatically selecting one of the extracted pairs according to a predefined convention.

Brief Description of the Figures

5   Figure 1 illustrates a network adapted to receive content from a broadcasting source and provide copy protection using XCA and the NRSS copy protection system;

        Figure 2 illustrates a block diagram of an XCA device employed within the system of Figure 1;

16
Claims

1.   A method for an audio/video processing device to enable a security device to access a service, the method comprising:

5   extracting service and entitlement control message packet identifier pairs from data associated with said service and automatically identifying one of the extracted pairs according to a predefined convention,

wherein each of the received pairs includes either a conditional

10   access entitlement control message identifier (CA ECM) or a local entitlement control message identifier (LECM).

2.   The method according to claim 1, wherein the predefined convention is dependent upon an order in which the pairs are sent to

15   the security device.

3.   The method of Claim 1, wherein each of the received pairs is either associated with a conditional access (CA) system or extended conditional access (XCA) system.

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4.   A method for an audio/video processing device to enable a security device to access a service, the method comprising:

extracting the service and entitlement control message packet identifier pairs from data associated with said service; and,

25   if only one service and entitlement control message packet identifier pair is extracted, identifying the extracted pair; and,

if more than one service and entitlement control message packet identifier pair are extracted, automatically identifying at least one of the extracted pairs according to a predefined convention,

AMENDED SHEET

wherein each of the received pairs includes either a conditional access entitlement control message identifier (CA ECM) or a local entitlement control message identifier (LECM).

5. The method of Claim 4, wherein the predefined convention is dependent upon an order in which the pairs are extracted.

6. Canceled.

7. The method of Claim 4, wherein each of the received pairs further includes a service identifier.

8. The method of Claim 4, wherein the predefined convention defines a first of the pairs to be received to include the service identifier and local entitlement control message identifier.

9. The method of Claim 4, wherein at least a portion of the data is secured using one of a plurality of conditional access systems.

10. The method of Claim 9, wherein at least one of the conditional access systems is associated with a broadcaster of the program and at least a second of the conditional access systems is associated with an access device, communicable with the presentation device.

11. The method of Claim 10, wherein the presentation device is a digital television, and the access device is a set-top box in combination with a second security device.

12.   The method of Claim 4, further comprising:

the security device communicating interface protection related information and conditional access related information to the audio/video processing device; and,

the audio/video processing device parsing a program map table using the communicated conditional access information and stored conditional access information;

wherein the program map table associates packet identifiers with corresponding service information.

13.   The method of Claim 12, wherein the security device uses packet identifiers to identify which of the packets contains entitlement control message data suitable for descrambling the data indicative of the program.

14.   The method of Claim 13, wherein at least some of said entitlement control messages are local entitlement control messages which include at least a field for identifying and LECM and a field for conditional access identification, and said proper processing comprises descrambling said service by accessing an appropriate key in said data using information included in at least one of said field for identifying and LECM and said field for conditional access identification.

15.   The method according to claim 9, wherein at least one portion of the data is indicative of at least one program.

16.   The method according to claim 4, wherein the data is communicated via a digital transmission system.

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17. A method for identifying local entitlement control messages from broadcast entitlement control messages comprising the step of:

extracting service and entitlement control message packet identifier pairs from data associated with a service; and,

5 if only one service and entitlement control message packet identifier pair is extracted, identifying the extracted pair as either a local entitlement control message or a broadcast entitlement control message; and,

if more than one service and entitlement control message
10 packet identifier pair are extracted, automatically identifying at least one of the extracted pairs as a local entitlement control message.

18. A method for identifying local entitlement control messages from
15 broadcast entitlement control messages comprising the step of:

extracting service and entitlement control message packet identifier pairs from data associated with a service; and,

if only one service and entitlement control message packet identifier pair is extracted, identifying the extracted pair as either
20 a local entitlement control message or a broadcast entitlement control message; and,

if more than one service and entitlement control message packet identifier pair are extracted, automatically identifying at least one of the extracted pairs as a broadcast entitlement control
25 message.

AMENDED SHEET

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference RCA 89858	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)

International application No. PCT/US00/27685	International filing date *(day/month/year)* 06/10/2000	Priority date *(day/month/year)* 06/10/1999

International Patent Classification (IPC) or national classification and IPC H04N7/16

Applicant THOMSON LICENSING S.A. et al.

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 9 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

   I   ☒ Basis of the report
   II ☐ Priority
   III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   IV ☐ Lack of unity of invention
   V   ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   VI ☐ Certain documents cited
   VII ☒ Certain defects in the international application
   VIII ☒ Certain observations on the international application

Date of submission of the demand 02/05/2001	Date of completion of this report 17.01.2002

Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Loeser, E Telephone No. +49 89 2399 8482

Form PCT/IPEA/409 (cover sheet) (January 1994)

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)):*
Description, pages:

1,3-15	as originally filed		
2,2a	as received on	24/10/2001 with letter of	23/10/2001

Claims, No.:

1-5,7-18	as received on	24/10/2001 with letter of	23/10/2001

Drawings, sheets:

1-3	as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

☐   the description,   pages:

☐   the claims,   Nos.:

☐   the drawings,   sheets:

5. ☐   This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

   —

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-18
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-18
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-18
	No:	Claims	

2. Citations and explanations
   see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

1. General

The present application does not satisfy the criteria set forth
in Article 6. The criteria set out in Articles 33(2) and 33(3)
PCT are met, provided that the claims' deficiencies as to lack
of clarity set out below are overcome. The invention is
industrially applicable.

2. Concerning Section VIII - Art. 6 PCT:

2.1.
The various definitions of the invention given in independent
method claims 1, 4, 17 and 18 and the high degree of overlap of
the respectively claimed subject-matter (claims 4, 17 and 18 are
considered to relate to the same basic embodiment as defined in
claim 1 and could therefore be drafted as dependent claims
without difficulty) are such that the claims as a whole are not
concise, contrary to Art. 6 and Rule 6.1(a) PCT.

2.2.
The feature "automatically identifying one of the extracted
pairs according to a predefined convention" used in each of
claims 1, 2, 4, 5, 8 fails to set out clearly its technical
meaning (Art. 6 PCT contravened). The "predefined convention"
appears to be intended to further delimit the <u>automatic
identification</u>, however fails to define the technical features
required therefor (what kind of convention?).
     It is acknowledged that the description (p.14) discloses
sending one or two pairs of PIDs, wherein two different types of
pairs containing either a CA ECM PID or a LECM PID. Thus there
appears to be a "predefined convention of the number and types
of pairs that are transmittable, and the order in plural pairs
of different types are sent" and that the terminal must be
capable of handling different cases. Such handling can be
automatic, and there is an implicit requirement of taking into
account, at reception of any pair, the predefined convention
about the number and types of transmittable pairs, so as to
correctly use the received information. It is thus considered

that the term "predefined convention" requires clarification
such as "<u>predefined convention defining the type, such as the
syntax, of said control messages and the order of transmission
of said identifier pairs</u>" (Basis: p.14 lines 11-29).

It is considered that when only one pair is received, the
automatic identification relies upon the detection of characte-
ristics of the data content (eg the syntax of the LECM, cf p.14
line 25) of the pair to correctly discriminate between the two
types of identifiers (CA or LECM). When two pairs are received,
a detection is not required because the order in which the pairs
are transmitted is predefined.

2.3.
Claims 4, 17 and 18 appear to be based on yet unmentioned but
essential conditions:

In the received broadcast control messages which due to the
claims' wording inherently contain the service and entitlement
control message packet identifier pairs, as addressed in the
claims, these pairs must include at least either LECM or CA
identifiers. Due to the claims' wording, a situation where none
of such identifiers is received may occur but is not dealt with.
E.g., if a pair of identifiers is received which does not
include any of LECM of CA but includes other identifiers for
other purposes, the method would erroneously interpret such
other identifiers as LECM or CA identifiers. Due to this
deficiency inherent in the claims' wording the scope of
protection becomes unclear.

It is thus considered necessary to clarify the claims by
specifying e.g. "<u>receiving and extracting ... service, wherein
each of the received pairs includes either a conditional access
entitlement message identifier (CA ECM) or a local entitlement
control message identifier (LECM)</u>", i.e. by including the last
feature of present claim 1 in each of claims 17 and 18.

2.4.
In claims 4, 17 and 18 an attempt is made to define the claimed
subject-matter in terms of a result to be obtained ("identifying
the extracted pair as ...") without specifying how this can be

achieved technically. Related essential information is missing in the claim. Thus Art. 6 PCT is contravened.

In order to overcome this objection, it would appear to be sufficient in the present case to indicate in the claim (as for claim 1, cf paragraph 2.2 above) that the identification is based on a <u>"predefined convention defining the type, such as the syntax, of said control messages and the order of transmission of said identifier pairs"</u>.

3. Concerning Section V - Articles 33(2) and 33(3) PCT

The following documents are cited:
D1: US-A-5 420 866;
D2: Kramer D: "Wunderkiste des digitalen Fernsehens", Bull. SEV/VSE, CH, Schweizerischer Elektrotechnischer Verein, Zürich, Vol.88 No.3 pp. 27-30.

3.1. Claim 1

D1 (e.g. abstract) discloses a method of providing different sets of conditional access information to a remote location, wherein a remotely located decoder can employ transmitted table information to identify and extract transport packets that carry a selected one of the sets of conditional access information.

It is stressed that D1 aims at overcoming a prior art problem (D1: col.5 lines 1-17) that when plural services from respective plural different vendors were to be received, a respective plurality of different decoders was required.

In order to overcome this problem, the solution disclosed in D1 provides a single transport stream formed from plural different elementary streams representing the different services from the different vendors (D1: col.5 line 31 - col.6 line 36; Figs. 7, 8). Each elementary stream is accompanied in well-known manner by auxiliary and identifying information (D1: Fig.3), such as program service information and encryption related information, such as entitlement control messages (ECM).

When such information is extracted, it is implicitly required

to extract from the data stream the packet identifiers for the PMT and ECM packets of a specific substream. The extraction of any two such extracted packet identifiers implied by D1 antici- pates the extraction of packet identifier pairs of claim 1.

Claim 1 is silent about services from different vendors. The claim merely implies the presence of "a service" provided as a packetized data stream which includes identifier pairs to be ex- tracted, wherein a pair consists of a service packet identifier and an entitlement control identifier (ECM). Such features are anticipated by the explicit and implicit disclosure of D1, be- cause the known system requires the extraction of such identi- fiers in order to enable access to the payload information of an elementary data stream desired to be accessed.

Claim 1 further effectively specifies that an entitlement con- trol identifier (ECM) can be of two different types, one being "conditional access entitlement control message identifier (CA ECM)", and the other a "local entitlement control message iden- tifier (LECM)". The different names given to these two types of identifiers do not by themselves establish a technical distinc- tion therebetween. Thus the LECM is interpreted as being just another ECM possibly being prepared for services from a specific vendor, or for a different purpose (e.g. Extended Conditional Access, XCA, cf pp. 3-5, whatever this might mean technically) not at present defined in the claim.

    Regardless of the interpretation of "LECM", when a pair of identifiers as claimed happens to contain a CA ECM, the feature is anticipated by D1. Moreover, as long as the term LECM is not clearly defined, the option of providing a LECM instead of a CA ECM could be seen as establishing novelty at least formally, but could not establish an inventive step.

The claim's feature pertaining to "automatically identifying one of the extracted pairs according to a predefined condition" has deficiencies under Art. 6 PCT identified in paragraph 2.2 above which do not permit establishing the feature's true scope. Thus the feature cannot establish an inventive step.

D2, like D1, addresses the problem of providing a subscriber
with content from different providers wherein conditional access
has to be carried out according to respective different systems
(Simulcrypt).

For the reasons given above, claim 1 on file is can be seen as
meeting the requirement of novelty but cannot be seen to estab-
lish an inventive step as required by Art. 33(3) PCT in light of
the what is explicitly and implicitly disclosed by D1.

However, under the assumption that the claim is clarified in
accordance with the suggestion made in paragraph 2.2 above, it
will comprise the following effective feature: predefining dif-
ferent types of ECM to makes them distinguishable from each
other and thus automatically detectable, and, for the case of
transmission of two pairs of identifiers, predefining in which
order the pairs each containing a different type of ECM are
transmitted. Such a concept does not appear to be suggested
disclosed in any of the presently available prior art.

It is considered that the aforementioned suggested clarification
to claim 1 is relatively minor. Hence, the findings in this
report relative to inventive step of claim 1 are given under the
assumption that the required clarifications set out above are
carried out. Under this assumption, claim 1 and its dependent
claims would meet the requirements set out in Art. 33(3) PCT.

3.2. Claims 4 and 17, 18

The findings set out in paragraph 3.2 above correspondingly
apply to claims 4, 17 and 18.

Thus under the assumption that the clarifications identified in
paragraphs 2.3 and 2.4 are carried out, these claims and their
dependent claims would meet the requirements set out in Art. 33
PCT.

4. Concerning Section VII: Description and other belongings

4.1. The claims are not cast in the two-part form as required by Rule 6.3(b) PCT.

4.2. A document reflecting the prior art described on page 2 is not identified in the description (Rule 5.1(a)(ii) PCT).

4.3. As to the relevant background art disclosed by D1, the description (p.2 paragraph 3) is considered to summarize the disclosure of D1 in a slightly misleading manner. It is considered that the actual disclosure of D1 includes providing a single transport stream with plural elementary data streams from different providers and involving different conditional access system, and includes a single decoding device (Fig.6) capable of decoding any desired one of the elementary streams (Fig. 8). The presence of "plural decoders" addressed in D1 (col.12) is considered to merely relate to the disclosed single decoder's hardware ability to decode in accordance with plural different encryption/CA schemes (change-over between different software modules).

Claims

1.   A method for an audio/video processing device to enable a security device to access a service, the method comprising:

extracting service and entitlement control message packet identifier pairs from data associated with said service and automatically identifying one of the extracted pairs according to a predefined convention.

2.   The method according to claim 1, wherein the predefined convention is dependent upon an order in which the pairs are sent to the security device.

3.   The method of Claim 1, wherein each of the received pairs is either associated with a conditional access (CA) system or extended conditional access (XCA) system.

4.   A method for an audio/video processing device to enable a security device to access a service, the method comprising:

extracting the service and entitlement control message packet identifier pairs from data associated with said service; and,

if only one service and entitlement control message packet identifier pair is extracted, identifying the extracted pair; and,

if more than one service and entitlement control message packet identifier pair are extracted, automatically identifying at least one of the extracted pairs according to a predefined convention.

5.   The method of Claim 4, wherein the predefined convention is dependent upon an order in which the pairs are extracted.

6.   The method of Claim 5, wherein each of the received pairs includes either a conditional access entitlement control message identifier or a local entitlement control message identifier.

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7.   The method of Claim 6, wherein each of the received pairs further includes a service identifier.

8.   The method of Claim 6, wherein the predefined convention defines a first
5   of the pairs to be received to include the service identifier and local entitlement control message identifier.

9.   The method of Claim 4, wherein at least a portion of the data is secured using one of a plurality of conditional access systems.

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10.   The method of Claim 9, wherein at least one of the conditional access systems is associated with a broadcaster of the program and at least a second of the conditional access systems is associated with an access device, communicable with the presentation device.

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11.   The method of Claim 10, wherein the presentation device is a digital television, and the access device is a set-top box in combination with a second security device.

20   12.   The method of Claim 4, further comprising:
        the security device communicating interface protection related information and conditional access related information to the audio/video processing device; and,
        the audio/video processing device parsing a program map table using the
25   communicated conditional access information and stored conditional access information;
        wherein the program map table associates packet identifiers with corresponding service information.

30   13.   The method of Claim 12, wherein the security device uses packet identifiers to identify which of the packets contains entitlement control message data suitable for descrambling the data indicative of the program.

14. The method of Claim 13, wherein at least some of said entitlement control messages are local entitlement control messages which include at least a field for identifying and LECM and a field for conditional access identification, and
5 said proper processing comprises descrambling said service by accessing an appropriate key in said data using information included in at least one of said field for identifying and LECM and said field for conditional access identification.

15. The method according to claim 9, wherein at least one portion of the data
10 is indicative of at least one program.

16. The method according to claim 4, wherein the data is communicated via a digital transmission system.

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different entitlement messages. Each service is comprised of audio and video packets. Any one decoder picks out the packets it needs and ignores the others in the stream.

5   In a Simulcrypt based CA system, a digital audio/video processing system, such as a Digital Television (DTV) parses the PMT and extracts the service and ECM PIDs using a CA system identification (ID) obtained from the CA module. Normally, each CA module supports only one CA system, and therefore has only one CA system ID. The PIDs of the A/V packets and the PIDs of the ECMs carrying the Control Words (CWs) are sent to the CA module, which descrambles
10   programs having proper purchase entitlements.

Summary of Invention

The present invention permits an audio/video processing device to use two CA system IDs to parse the PMT, and the CA module to correctly identify the
15   ECM PIDs which belong to a particular CA system. It includes a method for an A/V processing device, for example a DTV, to enable a security device to access a program by correctly identifying the packets for service and entitlement control messages. The security device is associated with the A/V processing device, which in turn is associated with a digital transmission system for data associated
20   with a service. The method comprises extracting at least one service and entitlement message control packet identifier pair from the data and, if only one service and entitlement control message packet identifier pair is extracted, identifying the extracted pair; and, if more than one service and entitlement control message packet identifier pair is extracted, automatically selecting one of
25   the extracted pairs according to a predefined convention.

Brief Description of the Figures

Figure 1 illustrates a network adapted to receive content from a broadcasting source and provide copy protection using XCA and the NRSS copy
30   protection system;

Figure 2 illustrates a block diagram of an XCA device employed within the system of Figure 1;